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Hello everyone. I just returned from my vacation and I have not been able to include logs and info in N&O. Don't worry, you didn't send me your findings in vain. I will include June's info in the July column, which should be a large one (I hope).

There is one thing that I'd like to mention though. I received very interesting info about the PIP (S30) via Jan Michalski from Krakow for which I thank him very much:

> The users of this station are the Staff of the North-Caucasus Military District and it is part of "Network 800" of Russia's MoD. The location is Rostov-na-Donu. It's tactical callsign is "Kolos" [Colossus]. The station is nicknamed "Kaplia" [Drop]. Frequencies: 5448.0 kHz - 15 kW (day), 3756.0 kHz - 5 kW (night) Mode: A3E, slightly reduced carrier.

This month I have a very good jamming article for you written Mr I. Hallas, who has worked for a Soviet jamming station. Further some current items about jammers and an intelligence profile about Costa Rica. I hope that you will like it.

If you are interested in the subject you really should buy Rimantas Pleikys' excellent book about Soviet jamming. You can order the book from www.zilionis.lt/jamming/jamminge.htm

Jamming did not die with the collapse of the Soviet Union. Many other countries are still jamming "clandestine" stations from the opposition or broadcasts transmitted by the enemy.

During the last couple of months SW Radio Africa has suffered jamming from Zimbabwe on 4880, 11770, 12145 and 15145 kHz. The following item about this subject comes from BBC Monitoring research, April 26, via Radio Netherlands Media Network Blog.

"In March 2005, Paris-based organization Reporters Sans

> Frontieres reported, that the Media Monitoring Project Zimbabwe (MMPZ), a Harare-based independent watchdog, said the jamming of SW Radio Africa's broadcasts is being carried out from Thornhill airbase - located outside the southwestern town of Gweru, between Harare and Bulawayo - where the government has a transmission station. According to the International Broadcasting Bureau (IBB), a US federal government entity, the equipment being used for the jamming comes from China, which has close trade links with Zimbabwe, especially in the telecommunications domain."

Other jammers noted this month originate from China (9680, 11765 and 17525 kHz), Vietnam (7125 kHz) and Iran (3875, 3930, 3970, 4370, 4610, 4860, 6425.5, 11575, 11624, 11629, 11630.2 and 11632.7 kHz)

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* RADIO JAMMING *

Written by: I. Hallas

This article is re-printed in WUN's "Numbers & Oddities" column with the kind permission of the Estonian Okupatsioonide Muuseum (Occupation Museum) http://www.okupatsioon.ee

::: INTRODUCTION

This article deals with events which occurred in the Soviet Union after World War II. The Iron Curtain had been lowered. The peoples trapped in the Soviet Union were not to get any kind of information from abroad.

The Communists were able to prevent people from moving through the Iron Curtain. But radio waves did not succumb to their regulations and penetrated the Curtain. This was a source of serious worry for the authorities ñ what would happen, now that info was coming in!? Something had to be done. And a solution was found. Communists have always been frightened by radio receivers and photo cameras. If the taking of photos was always feared and forbidden, then the situation with listening to the radio was a bit different. In 1940-1941 it was forbidden, and radio receivers were confiscated. Later, radios were permitted. But in 1950-1951, the Soviets began to use special radio transmitters to jam the broadcasts which penetrated the USSR from abroad, in the languages of the nations which were trapped in the Soviet Union.

A special network of radio transmitters was constructed all over the Soviet Union for this very purpose. Jamming was done in the whole spectrum of broadcasting wavelenghts, from longwaves to shortwave's 13th meter. We know that jammers existed also in the "people's democracies", but we don't

have any information about them.

The jammers not only covered the nation which they were meant for, but their effect could be felt even in Europe, beyond the Iron Curtain (what insolence!). Just recently, a traveller from Germany told me how their shortwaves used to be full of the clutter from Russian jamming transmitters. But now their airwaves are clean.

One means of preventing the listening of foreign broadcasts was to limit the number of short wave bands that radio receivers could pick up. Radio receivers manufactured in the Soviet Union lacked part of the shortwave spectrum. They could not pick up the shortwaves used for transmitting during the day. If there are 8 shortwave transmission bands

11 13 16 19 25 31 41 49 m
25 21 18 15 12 9 7 6 MHz

and the most commonly used ones are 16-49m, then Soviet radio receivers could pick up only shortwave bands 25-49m.

The following article gives a picture of how radio broadcasts were jammed in Estonia during the Soviet era. A similar system functioned throughout the USSR.

::: PREAMBLE

This story gets its start from the fact that, in 1955, I graduated from the Tallinn Electromechanical Technical School, as a radio specialist. In those days, graduates were assigned to a job for three years, by a special government commission (we called the system a slave market). I was lucky to get a job in Tallinn, at the Estonian SSR Radio Center, which was part of the Ministry of Communications.
I was assigned, along with a schoolmate, to Radio Center site nr. 65, on Sitsi Hill. It was located on Kopli Street, at the Kopli-Tˆˆstuse intersection, just before Kopli Street starts going downhill. Before the War, during independence, this had been the Ranna Radio Station. The antenna masts had been constructed by my teacher from the Technical School, engineer Albert Pıdrus. In the foundation of one of the masts there was even a brass plate bearing Pıdrus's name.
The number 65 indicated that it was a secret broadcasting station, with the task of jamming foreign radio broadcasts. There were four such broadcasting stations in Estonia: nr. 602 in Tallinn, near Tınism‰e, on Luha Street, which had 3 distinctive pronged masts (one of which survives to this day); one in Tartu on Tiigi Street; and one in P‰rnu. I no longer remember their code numbers. In addition to these, Estonian Radio's existing broadcasting stations could also be used for jamming.
Of the Sitsi broadcasting station, only the main building still exists.

Although we had been officially assigned to work there, for a whole month we weren't permitted into the control room, which was the most secret spot in that building. In the course of that month, the KGB checked out our suitability for special assignments, as that kind of work was called in those days. They obviously couldn't prove that we had committed any anti-Soviet crimes, and we were finally allowed to start working. It seems rather odd that a security check wasn't done until after we were assigned to work there.

The jamming process itself was the following. The jamming of the Voice of America, Radio Free Europe, etc. was not just done through the aforementioned broadcasting stations. The whole process was much more complicated. The headquarters was of course in Moscow.
This is how it functioned in Estonia: every Estonian jamming center (Tallinn, Tartu, P%rnu) consisted of two departments ñ a so-called radio bureau and an objekt. The radio bureau was actually a monitoring center, where the VOA and other broadcasts were listened to round the clock. When necessary, they gave the objekt (broadcasting station) instructions to start jamming.
The objekts were the aforementioned broadcasting stations (65, 602, etc.), which contained a wide assortment of short-, medium-, and longwave transmitting equipment.

The Tallinn radio bureau was located at 12 Kreutzwaldi Street, on the 3rd floor of the Ministry of Communications building. On every table there was a large Russian Krot type shortwave receiver equipped with a sensitive panoramic oscillograph. At every receiver sat a female Russian operator, wearing headphones. There was also one medium- and longwave receiver, which was used only occasionally. In the radio bureau they had the broadcasting schedules of the Estonian and Russian programs of VOA, RFE, etc. These were listened to constantly, and when necessary, the objekts were told to turn on their jammers.

And now, a little bit about the objekts. These were nothing more than broadcasting stations which contained various transmitters. For instance, broadcasting station nr. 65 consisted of:
- shortwave transmitters 1kW 10pcs
- US military 1-1 transmitter SCR 1pc
- mediumwave transmitter Uragan 10kW 1pc (water cooled)
- longwave transmitter Storm 3kW 1pc (air cooled)
- and 2 smaller k-1 transmitters which were rarely ever used

Objekt nr. 65 was headed by a Russian woman named Gorelova, who had graduated from the Leningrad Communications Institute.

Objekt nr. 602 consisted of 10 4kW shortwave transmitters. This was also headed by a Russian woman.

The Tartu and P%rnu objekts consisted mostly of US military SCR type shortwave transmitters.

The objekts and transmitters were numbered in sequence. The numeration of the objekts was as follows. The older type, equipped with 1-1 transmitters:

nr. 65 ñ in Tallinn, Sitsi Hill
nr. 66 ñ probably in Tartu
nr. 67 ñ probably in P%rnu
the rest of the objekts of this type were located outside of Estonia.

The newer type, equipped with more powerful transmitters:
nr. 602 ñ in Tallinn, on Luha Street. This was the only broadcasting station of its type in Estonia.

Numeration of transmitters: every transmitter had its own number. The numbers were assigned in sequence, within each city, irrespective of how many objekts there were in that city. Therefore, transmitters nr. 1-10 were located at objekt nr. 602, transmitters nr. 11-26 at objekt nr. 65. Nr. 1-10 were, for instance, 1-1 4kW transmitters, nr. 11, on the other hand, a Uragan transmitter. The radio bureaus (Tartu and P%rnu had their own radio bureaus) communicated with the objekts via special direct telephone lines.

::: THE NOISE GENERATOR

The noise with which we jammed the incoming broadcasts was produced by a special generator. This was known as the GMD ñ generator meshajushtshego deitsvija, in direct translation, the interference activity generator. Each objekt had a GMD, and each radio bureau had one as a back-up. After every minute of producing interference noise, each generator would also transmit its call sign. For instance, objekt 65's call sign was the Morse code letter for Y, objekt 602's, the Morse letter for V.

A GMD unit actually consists of four separate generators, each one with a twin triode 6N7. G1 gives the frequency 135Hz. G2 gives the frequency 320Hz. G3 gives the frequency 3Hz. G4 gives the frequency 5Hz. All of them are multivibrators, therefore, impulse current generators.
G1 and G3 are the basic generators, while G2 and G4 are the sub-generators, which modulate the frequency of the basic generators. G2 modulates G1's frequency by +-3Hz, and G4 modulates G3's frequency by +-5Hz. The noise produced by G1 and G3 are blended together to create the constant static and blaring with which the radio broadcasts were jammed, and which the radio listener finally heard. These Russian noise generators were actually quite cleverly made. Although all LW, MW, and SW broadcasts were always amplitude modulated (AM), amplitude modulation was not used for jamming,

but rather frequency modulation (FM). And this, on such a narrow strip as is needed in a band for 1 station, that is, 9-10kHz. If the transmission bearing wave is viewed with an oscillograph, the modulation cannot even be observed, as if it didn't exist.
The noise generator was regarded as the most secret device at the objekt. Outwardly, it didn't differ in any way from a common amplifier.
The noise generator, or jammer, was the last device to be explained to a new employee at an objekt. Any other Estonian Radio Center employee who came there and happened to ask questions about the device, was told that it was just one of the many amplifiers in the broadcasting station. As a matter of fact, I had an experience like that when I was still going to Technical School and was doing my internship at Laitse radio broadcasting station. For some reason, they had a GMD there at the time. I stumbled upon it, and not knowing what it was, of course made inquiries. The response was, that this was a modulation amplifier.

::: FREQUENCIES

We were able to jam broadcasts in the long- and mediumwave diapason, and shortwave broadcasts on bands 13, 16, 19, 25, 31, 41, 49m. I even remember some of the frequencies. In longwave, we worked on frequency 173kHz, and in mediumwave, mostly on frequency 1195kHz ñ that was Munich.
Another episode illustrating the extreme secrecy surrounding the work. During work, we had to make notes. We had to jot down the frequencies that the radio bureau gave us, so that we could adjust the transmitters accordingly. After a 15 minute broadcast, we no longer needed these notes. But we weren't allowed to write down the frequencies on a regular piece of paper, since those are thrown into the garbage, and could end up in the hands of enemy spies. Can you imagine ñ an American spy would be able to find out Voice of America's broadcasting frequencies!
For making notes, we were given special notebooks with numbered pages, which were bound together with string, the ends of which were sealed together. When the notebook was filled, it had to be given to the superior, upon which it was destroyed, or even placed in the archives.

The jamming itself was done in the following fashion. The radio bureau operator informed us what frequencies to expect at what times. At the same time, she would be monitoring the broadcasts. When we were jamming Voice of America, the operator would mainatain contact with us via the special telephone lines. Beside every transmitter, there was a telephone, so that the technician and operator could be in constant contact. Together they would try to get the jammer onto the exact frequency mode. We weren't permitted to turn off the jammer until the operator said so. Since our transmitters at Sitsi were not of especially high quality, they would tend to wander off the frequency, and the Voice of America broadcast would come in clearly. But since the radio bureau was constsntly monitoring the incoming broadcasts they would inform us of these shifts, so that we would

have to make adjustments to the transmitters. Sometimes, friends who were trying to listen to VOA would phone us and ask us to turn the jammer off on some particular frequency. They would then be able to listen, undisturbed, until the radio bureau discovered the shift. Since Voice of America transmitted on several frequencies at the same time, it wasn't easy for the radio bureau to monitor all the frequencies at the same time. Besides the local jammers, there were also long distance jammers in Russia, Ukraine, and who knows where else. These directional antennas would be aimed towards Estonia. Since they were so far away, their jamming transmissions would reach us via atmospheric reflections. The effectiveness of these long distance jammers was very dependant on the weather and other factors affecting transmission.

Besides jamming, we also had the opportunity to transmit original broadcasts. Right nearby, just one tram stop towards the center of town, by the Heina Street railroad viaduct, was Tallinn Radio's second program's broadcasting station, the so-called "railroad transmitter", so named because it was located in three railroad carriages. We could substitute for them with our medium wave transmitter, which was basically the same as theirs. And we actually did this when the "railroad transmitter" was being repaired. In connection with this, we once had an interesting experience. We had to stand in, with our medium wave transmitter Uragan, for the "railroad transmitter", since it needed to be overhauled. There was no direct link between us and the radio station. The station's program was sent to us for transmission via the radio bureau. The radio station and the radio bureau were located in neighboring buildings, at 12 and 14 Kreutzwaldi Street. The radio bureau sent us the program, to the Sitsi objekt, over the direct phone line. The radio program started at 6:55 in the morning. At the same time, 6:45 ñ 7:00, the Voice of America's morning program was coming in on mediumwave, and which we were supposed to jam. But this time the jamming was supposed to be done by the "railroad transmitter", which was thereafter supposed to be taken away for repairs. I had already set our transmitter to the radio program's frequency of 710kHz, the phone line with the radio bureau had been checked and commuted to the modulator, and the modulator had been adjusted to amplitude modulation. To check the transmission quality, we had a radio receiver on the table, tuned to 710kHz. But the radio bureau forgot that the transmission stations had been changed for that day. It was 6:50, when, over the table radio receiver, I could hear a Russian woman yelling and swearing in Russian ñ why isn't transmitter Uragan switched on and jamming Voice of America! The radio bureau operator phoned us over the same modulation line, over which the radio program should have been sent. And all this was going onto the air, for all of Estonia to hear. When the operator finally got tired and stopped her tirade, so as to catch her breath, I was able to inform her as to who was, on that day, doing the jamming, and who was transmitting the radio broadcast. I knew that everything she had said had gone onto the air. For a moment, there was total silence, and then the radio show could be heard over the phone line. No one from radio bureau bothered us for some time.

Besides jamming, various other things were also done at the Sitsi station. The Tartu radio stations first post-War mediumwave transmitter was built there, and then transported to Tartu. It was finally located in the Tiigi Street jamming station's building. The transmitter was built from the same Uragan type of transmitter as we had. The constructor was Raul P‰‰ro.
Both before and after me, many Electromechanical Technical School graduates ended up working at the Sitsi transmission station. For instance, the Minister of Communications Arvo Kaldma, and Kalju Kallikivi, the director of communications at Estonian Energy.
The Sitsi transmission station's territory was surrounded by a high fence. No outsiders were allowed to enter, not even the militia (Soviet regular police). At the gate was a guard armed with a rifle. The security team consisted of both Estonians and Russians. Sometimes, when it got very boring, we would go into the basement with the guard and shoot the rifle. But this was of course done only in secret.
The Sitsi station operated round the clock, was run by four two man teams, with two techinicians on duty during every 12 hour shift, during the day from 8:00 to 20:00, at night from 20:00 to 8:00.
One snowy winter we built a huge snowwoman in the station yard, which could even be seen from the other side of the fence, especially from the tram window. Since the snowwoman's female anatomy was very visible, we received a written reprimand from the Estonian Radio Center's Chief Engineer Gnipilt.
In 1958, my three compulsory years were up, and I left objekt nr. 65, and the Estonian Radio Center altogether, so as to accept a better paying position at the Estonian Maritime Fishing Harbor's navigation center.

::: TRANSMITTING ANTENNAS

The whole Sitsi objekt territory was a triangular lot between Kopli and Tˆˆstuse Streets. Now it has been built full of residential buildings. At one time, there were nothing but pastures there. Towards the city, the area ended with a church on Kopli Street. From behind that, a fence stretched to Tˆˆstuse Street. As a matter of fact, the church was at first used as the control room for jamming transmitters. But quite soon, a new building was constructed for that purpose. And the church was converted into a residence for Radio Center employees.
On the Sitsi site there were three masts. These weren't actually antennas, just the supporting structures. Two of them dated back to the independence era, to the days of the Ranna Radio Station, in the sense that they had been constructed out of the waste materials that had been left over from the construction of the T¸ri broadcasting station antenna masts. During the building of the T¸ri transmitter, a section of one mast had been damaged while being unloaded in Tallinn harbor. This section was discarded, but the material was later used for the Sitsi site masts. Along with the jammers, a third mast was also constructed, which was about 30 ñ 40 meters

high. The two original masts were higher. Unfortunately, I don't recall the exact hight, but it must have been about 60 meters. The antennas of all the transmitters were hung up between these masts. The shortwave aerials were symmetrically fed halfwave dipoles; the medium- and longwave aerials, unsymmetrical antennas , which were shorter than a quarter wave. Theoretically, the masts were tall enough to put up a full quarter wave antenna, but there just wasn't enough space. Every transmitter had it's own individual aerial, with the feeds coming out of the central building, through the windows.

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* INTELLIGENCE PROFILE: COSTA RICA *

::: BACKGROUND
Costa Rica is a Central American success story: since the late 19th century, only two brief periods of violence have marred its democratic development. Although still a largely agricultural country, it has expanded its economy to include strong technology and tourism sectors. The standard of living is relatively high. Land ownership is widespread.

::: GENERAL
Country name: Republica de Costa Rica (Republic of Costa Rica)
Short name : Costa Rica
Capital   : San Jose

Administrative divisions: 7 provinces;
Alajuela, Cartago, Guanacaste, Heredia, Limon, Puntarenas, San Jose

::: MILITARY / SECURITY
Costa Rica has no regular military forces. The national security is handled by the DirecciÛn de Seguridad del Estado (DSE) / DirecciÛn de Inteligencia y Seguridad Nacional (DISN).

Other security organisations are:
  Unidad Especial de IntervenciÛn (UEI)
  Guardia Civil
  Guardia Rural
  Policia de Fronteras
  Policia de Control de Drogas
  Policia de Migracion y Estrangeria

::: MINISTERIO DE SEGURIDAD PUBLICA - MSP

* Departamento de Inteligencia y Seguridad Nacional (DISN)

(Intelligence and National Security Department)

* DirecciÛn de Seguridad del Estado (DSE)
(Directorate of State Security)

Little is known about the Costa Rican intelligence service. Next to nothing about its history and it is hard to find any reliable info about the current situation. The following is a compilation of info that I have found.

The Agencia de Seguridad Nacional was formed on 1 Sept. 1963 under the jurisdiction of the Ministry of Public Security. The agency collected information about radical elements that represented potential threat for the Costa Rican national security.

In the 1980's the Departamento de Inteligencia y Seguridad Nacional (DISN) was formed. The DISN is responsible for domestic intelligence collection, counter intelligence, and internal security services. The agency reports to the Vice President and the President. In 1986, the Executive Decree #16,398 of 28-6-85 came into force and the agency subordinate to the Ministry of the Interior, Police and Public Security. This Ministry underwent a major reorganization in 1996 and is now divided in two sub ministries; the Ministry of Interior and the Ministry of Public Security (Ministerio de Seguridad Publica - MSP).

The DirecciÛn de Seguridad del Estado, or DirecciÛn de Inteligencia y Seguridad Nacional, has its headquarters in San JosÈ. According to Executive Decree N 23,758 they have regional offices in diverse places in Costa Rica. The DSE Director is appointed by the President.
DSE/DIS has the following directorates:

- DirecciÛn General (General Directorate)
- SubdirecciÛn General (General Sub Directorate)
- Asesoria Legal (Legal Bureau)
- DivisiÛn de Recursos Materiales y Presupuestos
(Division of Material Resources and Budgets
- DivisiÛn de Recursos Humanos (Division of Human Resources)
- DivisiÛn de Operaciones (Division of Operations)
- Departamento de Archivo (Archive Department)
- Departamento de An·lisis y EvaluaciÛn
(Department of Analysis and Evaluation)
- Unidad Especial de IntervenciÛn -UEI (Special Intervention Unit)

The UEI was created at the end of 1977 by the Ministerio de Seguridad Publica, but in January 1985 the DSE became responsible for this unit. In accordance with the General Police Law the UEI is a specialized unit that can be brought into action to counter terrorism and drug trafficking, but it also has internal security functions. The unit

has a paramilitary character and has a staff of 50 people. Its chief reports directly to the Office of the President.

The mission statement of DSE/DISN describes its tasks as follows:

1) Detect; investigate; analyze risks that can endanger the independence or territorial integrity or the stability of the country. These risks should be reported to the President or the Secretary of the Presidency.

2) Coordinate external security activities with other international organizations.

3) Supervise the security of the State and their goods.

4) Inform the pertinent Judicial authorities about the threat or the commission of a crime, and work together with other bodies to prevent crimes or to investigate them.

* Police forces
The Guardia Civil (Civil Guard), Guardia Rural (Rural Guard), Policia de Fronteras (Frontier Police), Policia de Control de Drogas (Drugs Control Police) and the Policia de Migracion y Estrangeria (Immigration Police) are also subordinate to the MSP.

::: Sources / further readings

- CIA World Factbook
- "Los EspÌas no Bastan: Definiendo las Politicas P˙blicas en Materia de Servicios de Inteligencia en Costa Rica" by Paul Chaves (Universidad de Costa Rica)
- Brassey's International Intelligence Yearbook 2003
- http://www.geocities.com/asrwebpage
  http://www.intelweb.es.vg

Thanks to Tony for the translations.

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Fill in the form and follow the instructions that will be mailed to you. You can find WUN on the web at http://www.wunclub.com

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